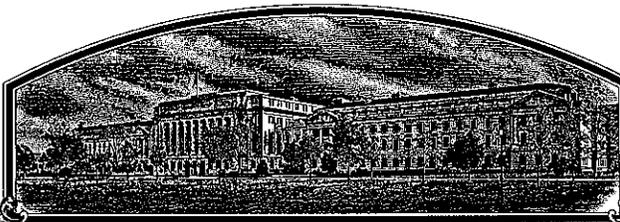


No.

9100062



# THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

## The Curators of the University of Missouri

Whereas, THERE HAS BEEN PRESENTED TO THE

### Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF *eighteen* YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. THE UNITED STATES SEED OF THIS VARIETY (1) SHALL BE SOLD BY VARIETY NAME ONLY AS SEED OF CERTIFIED SEED AND (2) SHALL CONFORM TO THE NUMBER OF GENERATIONS PERMITTED BY THE OWNER OF THE RIGHTS. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

SOYBEAN

'Delsoy 4900'

*In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this 30th day of October in the year of our Lord one thousand nine hundred and ninety-two.*

*Attest*

*Kenneth Hewitt*  
Commissioner  
Plant Variety Protection Office  
Agricultural Marketing Service

*Edward Madigan*  
Secretary of Agriculture



U.S. DEPARTMENT OF AGRICULTURE  
AGRICULTURAL MARKETING SERVICE

# APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) (as it is to appear on the Certificate) The Curators of the University of Missouri		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NO. S82-1443	3. VARIETY NAME Delsoy 4900
4. ADDRESS (street and no. or R.F.D. no., city, state, and ZIP) 321 University Hall Columbia, MO. 65211		5. PHONE (include area code) 314-882-3211	FOR OFFICIAL USE ONLY VPVO NUMBER 9100062
6. GENUS AND SPECIES NAME Glycine max (L.) Merr.	7. FAMILY NAME (Botanical) Leguminosae	FILING DATE January 4, 1991 <input type="checkbox"/> A.M. <input type="checkbox"/> P.M.	
8. CROP KIND NAME (Common Name) Soybean	9. DATE OF DETERMINATION 11-28-89	FEE S Filing and Examination Fee: \$ 2150. <sup>00</sup>	RECEIVED Date January 4, 1991 Certificate Fee: \$ 250. <sup>00</sup> Date September 15, 1992
10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION (Corporation, partnership, association, etc.) Educational Organization			
11. IF INCORPORATED, GIVE STATE OF INCORPORATION Missouri	12. DATE OF INCORPORATION		

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS  
Dr. S. C. Anand  
University of Missouri Delta Center  
Portageville, MO. 63873  
PHONE (include area code): 314-379-5431

14. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow INSTRUCTIONS on reverse)

- a.  Exhibit A, Origin and Breeding History of the Variety.
- b.  Exhibit B, Novelty Statement.
- c.  Exhibit C, Objective Description of Variety.
- d.  Exhibit D, Additional Description of Variety.
- e.  Exhibit E, Statement of the Basis of Applicant's Ownership.
- f.  Seed Sample (2,500 viable untreated seeds). Date Seed Sample mailed to Plant Variety Protection Office 11-9-90
- g.  Filing and Examination Fee (\$2,150) made payable to "Treasurer of the United States."

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? (See section 83(a) of the Plant Variety Protection Act.)  
 YES (If "YES," answer items 16 and 17 below)  NO (If "NO," skip to item 18 below)

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?  
 YES  NO

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?  
 FOUNDATION  REGISTERED  CERTIFIED

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?  
 YES (If "YES," through  Plant Variety Protection Act  Patent Act. Give date: \_\_\_\_\_.)  
 NO

19. HAS THE VARIETY BEEN RELEASED, USED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?  
 YES (If "YES," give names of countries and dates) in U.S. 5-1-90  
 NO

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.  
The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in section 41, and is entitled to protection under the provisions of section 42 of the Plant Variety Protection Act. Applicant(s) is (are) informed that false representation hereon can jeopardize protection and result in penalties.

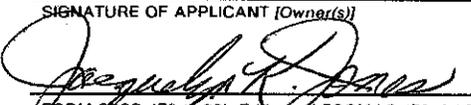
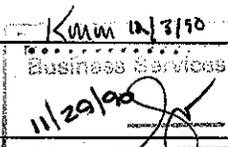
SIGNATURE OF APPLICANT [Owner(s)]	AS TO LEGAL FOR <sup>AA</sup>	CAPACITY OR TITLE	DATE
		Jacquelyn K. Jones Director, Business Services	

EXHIBIT AOrigin Breeding History of the Variety

Delsoy 4900 was selected from the cross Asgrow A5424 x Mack. Asgrow A5424 is a grey line derived from Williams x Essex. Mack is a Maturity Group V cultivar with resistance to SCN Race 3. Early generation selection and testing were done at the Delta Center of the University of Missouri at Portageville, MO. Individual  $F_3$  plants of the cross were evaluated in the greenhouse for reaction to SCN Race 3. Seed from the resistant and segregating plants was planted for field evaluation in the cyst nematode nursery at the Rhodes Farm, near Clarkton, MO. Individual  $F_4$  plants were harvested and screened to select homozygous resistant plants. Progenies were grown at the Lee Farm, near Portageville, MO.  $F_5$  lines were harvested for testing and seed increase. Delsoy 4900 was evaluated under the designation S82-1443 in the Uniform Regional Soybean Tests IV South from 1985 through 1987. Delsoy 4900 was also evaluated in the Regional SCN tests from 1984 through 1987.

By and large, Delsoy 4900 has maintained its uniformity and stability by reproduction through seed except slight variability in hila color and peroxidase as stated in Exhibit D.

EXHIBIT BNovelty Statement

MOST Iff 19 AUGUST 1992

'Delsoy 4900' closely resembles 'Hill' in plant type, however, Delsoy 4900 is resistant to Race 3 of soybean cyst nematode (Heterodera glycines Ichinohe) whereas, Hill is susceptible. Delsoy 4900 also has purple flowers on the other hand, Hill has white flowers. Compared with Douglas, Delsoy 4900 is 8 - 10 days later in maturity.

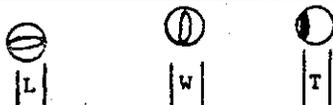
PLANT VARIETY PROTECTION OFFICE  
BELTSVILLE, MARYLAND 20705

OBJECTIVE DESCRIPTION OF VARIETY  
SOYBEAN (*Glycine max* L.)

NAME OF APPLICANT(S) The Curators of the University of Missouri	TEMPORARY DESIGNATION S82-1443	VARIETY NAME Delsoy 4900
ADDRESS (Street and No., or R.F.D. No., City, State, and Zip Code) 321 University Hall Columbia, MO. 65211		FOR OFFICIAL USE ONLY PVPO NUMBER 9100062

Choose the appropriate response which characterizes the variety in the features described below. When the number of significant digits in your answer is fewer than the number of boxes provided, place a zero in the first box when number is 9 or less (e.g.,  ). Starred characters ★ are considered fundamental to an adequate soybean variety description. Other characters should be described when information is available.

1. SEED SHAPE:



- 1 = Spherical (L/W, L/T, and T/W ratios = < 1.2)  
2 = Spherical Flattened (L/W ratio > 1.2; L/T ratio = < 1.2)  
3 = Elongate (L/T ratio > 1.2; T/W = < 1.2)  
4 = Elongate Flattened (L/T ratio > 1.2; T/W > 1.2)

★ 2. SEED COAT COLOR: (Mature Seed)

- 1 = Yellow      2 = Green      3 = Brown      4 = Black      5 = Other (Specify) \_\_\_\_\_

3. SEED COAT LUSTER: (Mature Hand Shelled Seed)

- 1 = Dull ('Corsoy 79'; 'Braxton')      2 = Shiny ('Nebsoy'; 'Gasoy 17')

★ 4. SEED SIZE: (Mature Seed)

Grams per 100 seeds

★ 5. HILUM COLOR: (Mature Seed)

- 1 = Buff      2 = Yellow      3 = Brown      4 = Gray      5 = Imperfect Black      6 = Black      7 = Other (Specify) \_\_\_\_\_

★ 6. COTYLEDON COLOR: (Mature Seed)

- 1 = Yellow      2 = Green

★ 7. SEED PROTEIN PEROXIDASE ACTIVITY:

- 1 = Low      2 = High

★ 8. SEED PROTEIN ELECTROPHORETIC BAND:

- 1 = Type A (SP1<sup>a</sup>)      2 = Type B (SP1<sup>b</sup>)

★ 9. HYPOCOTYL COLOR:

- 1 = Green only ('Evans'; 'Davis')      2 = Green with bronze band below cotyledons ('Woodworth'; 'Tracy')  
3 = Light Purple below cotyledons ('Beeson'; 'Pickett 71')  
4 = Dark Purple extending to unifoliolate leaves ('Hodgson'; 'Coker Hampton 266A')

★ 10. LEAFLET SHAPE:

- 1 = Lanceolate      2 = Oval      3 = Ovate      4 = Other (Specify) \_\_\_\_\_

## 11. LEAFLET SIZE:

 21 = Small ('Amsoy 71'; 'A5312')  
3 = Large ('Crawford'; 'Tracy')

2 = Medium ('Corsoy 79'; 'Gasoy 17')

## 12. LEAF COLOR:

 21 = Light Green ('Weber'; 'York')  
3 = Dark Green ('Gnome'; 'Tracy')

2 = Medium Green ('Corsoy 79'; 'Braxton')

## ★ 13. FLOWER COLOR:

 2

1 = White

2 = Purple

3 = White with purple throat

## ★ 14. POD COLOR:

 2

1 = Tan

2 = Brown

3 = Black

## ★ 15. PLANT PUBESCENCE COLOR:

 2

1 = Gray

2 = Brown (Tawny)

## 16. PLANT TYPES:

 21 = Slender ('Essex'; 'Amsoy 71')  
3 = Bushy ('Gnome'; 'Govan')

2 = Intermediate ('Amcor'; 'Braxton')

## ★ 17. PLANT HABIT:

 1

1 = Determinate ('Gnome'; 'Braxton')

2 = Semi-Determinate ('Will')

3 = Indeterminate ('Nebsoy'; 'Improved Pelican')

## ★ 18. MATURITY GROUP:

 0  7

1 = 000

2 = 00

3 = 0

4 = I

5 = II

6 = III

7 = IV

8 = V

9 = VI

10 = VII

11 = VIII

12 = IX

13 = X

## ★ 19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

## BACTERIAL DISEASES:

★  0 Bacterial Pustule (*Xanthomonas phaseoli* var. *sojensis*)★  0 Bacterial Blight (*Pseudomonas glycinea*)★  0 Wildfire (*Pseudomonas tabaci*)

## FUNGAL DISEASES:

★  0 Brown Spot (*Septoria glycines*)Frogeye Leaf Spot (*Cercospora sojae*)★  0 Race 1  0 Race 2  0 Race 3  0 Race 4  0 Race 5  0 Other (Specify) 0 Target Spot (*Corynespora cassiicola*) 0 Downy Mildew (*Peronospora trifoliorum* var. *manshurica*) 0 Powdery Mildew (*Microsphaera diffusa*)★  0 Brown Stem Rot (*Cephalosporium gregatum*) 0 Stem Canker (*Diaporthe phaseolorum* var. *caulivora*)

19. DISEASE REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant) (Continued)

FUNGAL DISEASES: (Continued)

- ★  0 Pod and Stem Blight (*Diaporthe phaseolorum* var; *sojae*)
- 0 Purple Seed Stain (*Cercospora kikuchii*)
- 0 Rhizoctonia Root Rot (*Rhizoctonia solani*)
- Phytophthora Rot (*Phytophthora megasperma* var. *sojae*)
- ★  0 Race 1     0 Race 2     0 Race 3     0 Race 4     0 Race 5     0 Race 6     0 Race 7
- 0 Race 8     0 Race 9     0 Other (Specify) \_\_\_\_\_

VIRAL DISEASES:

- 0 Bud Blight (Tobacco Ringspot Virus)
- 0 Yellow Mosaic (Bean Yellow Mosaic Virus)
- ★  0 Cowpea Mosaic (Cowpea Chlorotic Virus)
- 0 Pod Mottle (Bean Pod Mottle Virus)
- ★  0 Seed Mottle (Soybean Mosaic Virus)

NEMATODE DISEASES:

- Soybean Cyst Nematode (*Heterodera glycines*)
- ★  0 Race 1     0 Race 2     2 Race 3     1 Race 4     0 Other (Specify) \_\_\_\_\_
- 0 Lance Nematode (*Hoplolaimus Colombus*)
- ★  1 Southern Root Knot Nematode (*Meloidogyne incognita*)
- ★  0 Northern Root Knot Nematode (*Meloidogyne Hapla*)
- 1 Peanut Root Knot Nematode (*Meloidogyne arenaria*)
- 0 Reniform Nematode (*Rotylenchulus reniformis*)
- 0 OTHER DISEASE NOT ON FORM (Specify): \_\_\_\_\_

20. PHYSIOLOGICAL RESPONSES: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- ★  0 Iron Chlorosis on Calcareous Soil
- 0 Other (Specify) \_\_\_\_\_

21. INSECT REACTION: (Enter 0 = Not Tested; 1 = Susceptible; 2 = Resistant)

- 0 Mexican Bean Beetle (*Epilachna varivestis*)
- 0 Potato Leaf Hopper (*Empoasca fabae*)
- 0 Other (Specify) \_\_\_\_\_

22. INDICATE WHICH VARIETY MOST CLOSELY RESEMBLES THAT SUBMITTED.

CHARACTER	NAME OF VARIETY	CHARACTER	NAME OF VARIETY
Plant Shape	Hill	Seed Coat Luster	Mack
Leaf Shape	Crawford	Seed Size	Crawford
Leaf Color	Mack	Seed Shape	Crawford
Leaf Size	Lee 74	Seedling Pigmentation	Mack

## 23. GIVE DATA FOR SUBMITTED AND SIMILAR STANDARD VARIETY: Paired Comparison Data

VARIETY	NO. OF DAYS MATURITY	PLANT LODGING SCORE	CM PLANT HEIGHT	LEAFLET SIZE		SEED CONTENT		SEED SIZE G/100 SEEDS	NO. SEEDS/POD
				CM Width	CM Length	% Protein	% Oil		
Submitted	130	2.3	87.5	9.8	13.9	40.0	21.0	16.3	2.8
Douglas Name of Similar Variety	122	1.5	82.0	8.5	12.9	40.8	20.6	14.4	3.2

## PUBLICATIONS USEFUL AS REFERENCE AIDS FOR COMPLETING THIS FORM:

1. Caldwell, B.E., ed. 1973. Soybeans: Improvement, Production, and Uses. Amer. Soc. Agron. Monograph No. 16.
2. Buttery, B.R. and R.I. Buzzell. 1968. Peroxidase activity in seeds of soybean varieties. Crop Sci., 8: 722-725.
3. Hymowitz, T. 1973. Electrophoretic analysis of SBTI-A<sub>2</sub> in the USDA soybean germplasm collection. Crop Sci., 13: 420-421.
4. Payne, R.C. and L.F. Morris. 1976. Differentiation of soybean cultivars by seedling pigmentation patterns. J. Seed Technol. 1: 1-19.

7

9100062



**Leads the way**

Campaign MU: 1990-1993

**Delta Center**

**P.O. Box 160**

**Portageville, Mo. 63873**

**Telephone (314) 379-5431**

**FAX: (314) 379-5875**

March 11, 1993

Dr. Jeffrey Strachan, Examiner  
Plant Variety Protection Office  
NAL Building, Room 500  
10301 Baltimore Blvd.  
Beltsville, MD 20705-2351

RE: Delsoy 4900 soybean. PVP 9100062

Dear Dr. Strachan:

We would like to make an amendment in Exhibit D for Delsoy 4900.  
It may read as follows:

Exhibit D  
Additional Description of Variety

"The seeds of Delsoy 4900 have light brown hila however, there may be up to 2% (by weight) seed with black hila color. The seed with black hila color had both high and low peroxidase reaction. Delsoy 4900 has tawny pubescence, but approximately 50% of the plants have light shade of tawny and others have dark tawny shade."

Thank you.

Sincerely,

Sam C. Anand  
Professor

SCA/skp

cc: Richard Atwell, Missouri Seed Improvement Association  
Association of Official Seed Certifying Agencies, 3709 Hillsborough St.,  
Raleigh, NC 27607

EXHIBIT EStatement of the Basis of Applicant's Ownership

The variety was developed by the funds and facilities primarily provided by the University of Missouri and the work was done at the University of Missouri Delta Research Station. The Missouri Soybean Merchandising Council provided some funds to the said university which were also utilized in the development of this variety.